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## Invasive Species and Public Investment in the Green Economy

*Approved by ISAC on June 24, 2010*

### Issue

Invasive species are intricately linked to the economy. Trade, travel, and transport facilitate their spread. Invasive species management requires extensive human and financial resources. The impacts of invasive species can substantially undermine economic growth and sustainable development.

U.S. Executive Order (E.O.) 13112<sup>1</sup> defines invasive species as “alien [non-native] species whose introduction does or is likely to cause economic or environmental harm or harm to human health” and states that Federal agencies should... “not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species...”

The Obama Administration and the 111<sup>th</sup> Congress have identified expansion of the Green Economy—an emerging marketplace that seeks to optimize the synergy among social, environmental, and financial values<sup>2</sup>—as a top priority<sup>3</sup>.

Invasive species prevention and management<sup>4</sup> can foster the Green Economy through green collar job creation and social development programs. On the other hand, if invasive species are not addressed as a matter of urgency, their spread and consequent impacts will substantially undermine green economic growth<sup>5</sup>, including our capacity for renewable energy development/ expansion<sup>6</sup>.

### Decisive Action is Required

This briefing paper, adopted by the U.S. Invasive Species Advisory Committee (ISAC), provides:

- a) Background information on the linkages between invasive species and the Green Economy, and;
- b) Recommendations for action by the Federal government to capitalize on the opportunities invasive species prevention and management provide for *green collar jobs and social program development*, as well as to *reduce the risks that invasive species pose* to realization of green economic growth.

### Background

#### *Opportunities*

The prevention and management of invasive species requires substantial human resources across a wide range of expertise, including inspection, taxonomic identification, research, monitoring, education and communication, technical assistance, policy and regulation, control, eradication, and restoration. In addition to jobs created specifically to address invasive species, the technical demands of invasive species prevention and management expand job opportunities across a wide variety of sectors (e.g., software development for mapping and modeling,

<sup>1</sup> 1999. [www.invasivespecies.gov](http://www.invasivespecies.gov)

<sup>2</sup> A.K.A “The Triple Bottomline”

<sup>3</sup> e.g., bills S. 267-269; [www.govtrack.us/congress](http://www.govtrack.us/congress) and [www.whitehouse.gov/issues/energy-and-environment](http://www.whitehouse.gov/issues/energy-and-environment)

<sup>4</sup> For the purposes of this paper, management means both eradication and control measures.

<sup>5</sup> Invasive species already cost the U.S. more than \$100 billion/year. Pimentel, D. et al. 2000. BioScience 50:53-65

<sup>6</sup> For more information, see ISAC briefing paper, “Biofuels: Cultivating Energy not Invasive Species,” [www.invasivespecies.gov](http://www.invasivespecies.gov)

development and testing of tools for integrated pest management). The need for green collar jobs ranges from entry level to highly technical. Entry-mid level positions could be designed to serve as technical training and social development programs for youth and persons at risk, providing benefits well beyond the management of invasive species. For example, South Africa's Working for Water Programme employs approximately 29,000 workers (mostly impoverished women) per year. In addition to salary (starting at US\$6/day), they receive health care, child care, and educational benefits. The service the workers provide to the region is substantial; eradication and control of some 200 invasive plant species which clog waterways, degrade farmland, heighten fire risk, decrease water supply, and contribute to desertification. Secondary industries provide economic development opportunities by turning some of the invasive plants into products such as baskets and school desks<sup>7</sup>.

## Challenges

Invasive species can pose substantial threats to natural resources and, in turn, green economic growth. Forestry, aquaculture, horticulture, and farming are all vulnerable to the impacts of invasive species. In Ohio alone, the impact of the emerald ash borer on community residents is estimated to be between \$1.8 and \$7.6 billion for tree loss, removal, and replacement.<sup>8</sup> Invasive plants have reduced the real estate value of Montana's ranches by nearly 60%.<sup>9</sup> The glassy winged sharpshooter<sup>10</sup> poses an economic threat to California grape, raisin, and wine industries, as well as associated tourism, collectively amounting to nearly \$35 billion annually<sup>11</sup>. Invasive species also impact recreational opportunities such as hunting, fishing, and gardening which create substantial revenue for state and local governments. In the western U.S., deer and elk have lost native forage (up to 90%) to invasive plants, and throughout the country waterfowl habitat is degraded by aquatic invaders (e.g., purple loosestrife and tamarisk)<sup>12,13</sup>. The economic impacts of invasive species on these sectors can result in decreases in profitability, job loss, and even business failure.

Emerging green markets, such as renewable energy, need to guard against the potential negative economic impacts of invasive species. For example, creation of "energy farms" and "energy corridors" will disturb landscapes, increasing opportunities for the establishment and spread of invasive plants which could become a costly, long-term site maintenance requirement. Some species of proposed biofuels are known to be invasive or have the potential to become invasive. Under these circumstances, the costs to society may substantially outweigh the benefits of using these nonnative organisms. To prevent the establishment and spread of invasive species via energy sector activities, early detection and rapid response programs will need to be well staffed and funded<sup>14</sup>.

## Recommendations

We call on the member Departments and Agencies of the National Invasive Species Council (NISC) and potential partners to:

- Establish a national survey of invasive species, to be administered at the state-level. Support this program by substantially increasing Federal and state jobs at all technical levels to survey, identify, map, catalog, and model patterns/trends of invasive plants and animals<sup>15</sup>. Include the existing state and regional invasive species committees/councils in the development and implementation process. Place priority on invasive species known or projected to have substantial impacts.
- Supplement the Federal and state workforce by creating contract jobs in the private sector and offering grants to encourage business innovation and entrepreneurship (e.g., native plant and seed companies, ecosystem restoration, invasive species mapping and control services, and education/outreach programs).

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<sup>7</sup> Koenig, R. 2009. Unleashing an army to repair alien-ravaged ecosystems. *Science* 325:562-563 and [www.dwaf.gov.za/wfw/default.asp](http://www.dwaf.gov.za/wfw/default.asp)

<sup>8</sup> A small insect native to eastern Asia; Syndor et al. 2007. Economic impact of the emerald ash borer. *Arboriculture & Urban Forestry* 33:48-54.

<sup>9</sup> Sheley, R. et al. 1998. Montana State University Extension Bulletin #152.

<sup>10</sup> Found relatively recently in California, an invasive insect which carries a deadly plant bacterium, *Xylella fastidiosa*.

<sup>11</sup> <http://www.invasivespeciesinfo.gov/economic/main.shtml>

<sup>12</sup> <http://www.fs.fed.us/invasivespecies/preention/huntersanglers.shtml>

<sup>13</sup> <http://www.invasivespeciesinfo.gov/economic/main.shtml>

<sup>14</sup> For more information, see ISAC briefing paper, "Biofuels: Cultivating Energy not Invasive Species;" [www.invasivespecies.gov](http://www.invasivespecies.gov).

<sup>15</sup> In implementing this recommendation, capitalize on the mapping (etc.) that has already been accomplished.

## **Recommendations (cont'd.)**

- In order to counter the dramatic decline in taxonomic capacity (i.e. the decrease in the number of people trained to identify specific species), provide grants to support research/education/training in taxonomy as well as job creation for taxonomists and parataxonomists (people who lack formal higher-level education, but who are trained to undertake species identification tasks).
- Capitalize invasive species prevention and management needs (e.g., along roadways and on government lands) to create entry-mid level, high impact social development programs for youth and persons at risk (e.g., minimum security prison population). Establish Federal initiatives and/or offer grants to states and tribes.
- Substantially increase Federal and state agency staffing in the areas of import/border inspection for agriculture and wildlife<sup>16</sup>, specimen identification, pest risk analysis (including pre-import screening), and invasive species program management (esp. public education/outreach, regulatory enforcement, and early detection/rapid response).
- Establish/strengthen internships in invasive species identification, control/eradication, mapping, and monitoring for high school and college students. Support comparable Federal, state, tribal, and non-profit initiatives<sup>17</sup>.
- Develop stronger relationships between the Federal government and green industries potentially impacted by and/or managing invasive species. For example, work with the Invasive Species Advisory Committee (ISAC) and/or NISAW to organize an Invasive Species & Green Industries Summit.
- Mandate that, prior to receiving Federal support: 1) renewable energy projects (esp. solar, wind, and biofuel) have adequate invasive species mitigation plans in place and 2) biofuel developers/producers demonstrate that nonnative species are of low invasion risk (to the propagation site, area of potential dispersal, and along transport pathways) based on a competent invasive species risk analysis<sup>18</sup>.

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<sup>16</sup> Reaser, J. K. and J. Waugh. 2007. Denying Entry: Opportunities to Build Capacity to Prevent the Introduction of Invasive Species and Improve Biosecurity at US Ports. IUCN-World Conservation Union, Washington, DC. p. 119.

<sup>17</sup> For example, the Youth Conservation Corps (see: [http://www.tools4outdoors.us/view\\_tool.jsp?id=22](http://www.tools4outdoors.us/view_tool.jsp?id=22)) and the Student Conservation Association ([www.thesca.org/](http://www.thesca.org/)).

<sup>18</sup> For more information, see ISAC briefing paper, "Biofuels: Cultivating Energy not Invasive Species;" [www.invasivespecies.gov](http://www.invasivespecies.gov).